## REMARKS

### *Rejection under 35 U.S.C. § 101*

In the last office action, the examiner rejected all claims as directed toward non-statutory subject matter because of the use of the word *field*. In response to this rejection, the applicants herein amend to change "a model of a random field" in independent claims 1 and 6 to "a geologic model." Support is found at paragraph 21: "The method is most beneficially applied to random fields and specifically geologic models . . ." Geologic models are known to be *useful* "in the petroleum exploration and production industry to characterize petroleum reservoirs and depositional basins." [¶3, first sentence] They are *tangible* because they have real world value just as the business model in *State Street Bank.* (There, a business method provided a way to allocate assets among multiple mutual funds whose assets were pooled together. That method was held to be a tangible result, and useful and concrete as well.) The element of concreteness is not an issue.

### *Rejection under 35 U.S.C. § 102*

The examiner rejected claim 1 as anticipated by US 2003/0182093 ("Jones"). In response to the applicants' argument that Jones does not disclose step (b) of claim 1:

> (b) identifying connected strings of nodes within said tentative model, wherein a grid of azimuths is used to identify said connected strings of nodes;

the examiner argues that Jones in fact does disclose this feature because "he teaches that the 3D model is 'azimuthally controlled for the feature of interest.'" The applicants wish to traverse this ground of rejection.

The quote from Jones refers to the objective of his invention, not to a step for identifying connected strings of nodes. The title of the Jones publication is "Controlling Azimuthally Varying Continuity in Geologic Models." The title of the present invention is "Method of Conditioning a Random Field to Have Directionally

Varying Anisotropic Continuity." Both inventions have as their objective to develop a geologic model of some parameter such as porosity. The model should be continuous because that is the case in nature, which the model is to represent. At any point in the model, there should be a direction in which the parameter changes more continuously than in other directions. This is a result, for example, of flow along an ancient river. Deposits are made more continuously along the direction of flow. This path may be quite sinuous (i.e. the direction of maximum continuity is anisotropic), but the geologist will have some idea of it, and will want the model he is constructing to exhibit this property. Adjusting the model data to honor this *a priori* knowledge may be called *conditioning* or *controlling* the data.

As stated in ¶22(3) of the present application, the orientation of maximum continuity may be represented by a grid (coordinate system) of azimuth and (in a 3d case) dip angles. Thus, the phrase *azimuthally controlled* in Jones merely means that his method will control the geologic model to reflect the desired directions of maximum continuity as measured by azimuth angle. Jones does not use a grid of azimuths to identify connected strings of nodes as required in the applicants' claim 1, and as the applicants' method is explained in ¶¶ 30-31, compared to Jones's method explained in his ¶¶ 42-43, Jones does not identify connected strings of nodes at all. Rather, he defines the *thalweg* (centerline) of a single, specified feature of interest (e.g. the location of an ancient river valley). See Jones's Fig. 2 where **210** denotes such a feature. **212** is the corresponding thalweg, which is identified pursuant to steps **306** and **406**, the equivalent steps in Jones's two flowcharts. <u>This is the step that corresponds to step 1(b) quoted above from the present application. The two steps are quite different.</u> In his ¶42, Jones describes the thalweg as a "key element in the azimuth consistent modeling process." This (his step **306/406**) will be "more commonly . . . interpreted and defined manually." (¶43) Nothing in ¶43 suggests identifying connected strings of nodes within said tentative model from a grid of azimuths, which is the limitation in the applicants' claims. Fig. 2 of the present application depicts a grid of azimuths, where the azimuth is denoted by the line in each cell showing direction of maximum continuity. Nothing like this grid is shown or disclosed in Jones.

Regarding the reference above to Jones's ¶42 and the words "the azimuth consistent modeling process," it should be clear as with other references to *azimuth* in Jones, that he is referring to the desired end result, not to step **306/406**. In other words, he wants an output model that looks like his Fig. 7, not like his Fig. 1. In the present application, Figs. 6B and 6C correspond to Figs. 7 and 1, respectively in Jones. The output results in both Jones's Fig. 7 and our Fig. 6B may be termed "azimuth consistent," but only our Fig. 6B resulted from "identifying connected strings of nodes within said tentative model, wherein a grid of azimuths is used to identify said connected strings of nodes." (Claim 1, step b)

Since Jones is not believed to disclose or suggest at least step (b) of the applicants' claim 1, Jones cannot anticipate claim 1. Since independent claim 6 contains substantially the same words of limitation, it is similarly believed that Jones cannot anticipate claim 6. It follows that the remaining pending claims would then also not be anticipated by Jones because they are all dependent claims.